

## PROBLEM-BASED LEARNING UNIT

### **Problem-Based Learning: PBL Introduction Unit**

The purpose of this unit is to prepare students with the essentials needed prior to a problem-based learning unit.

#### **Day 1-5: Building PBL Skills**

Communication  
Collaboration  
Creativity  
Critical Thinking

#### **Day 6-10: Introduce PBL Process through Mini-PBL**

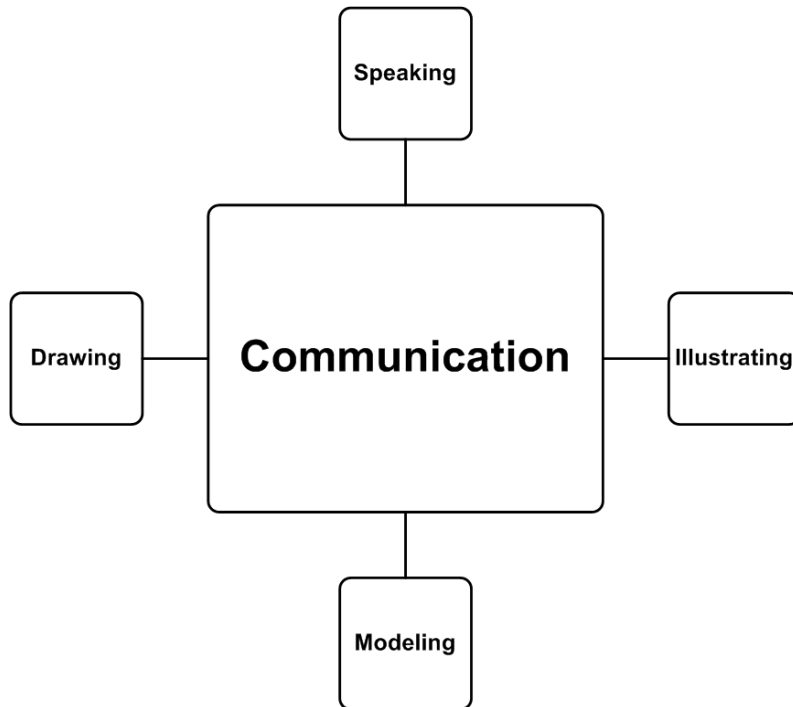
1. Introduction/Entry Event
2. Driving Question
3. Needs to Know
4. Collaborate
5. Inquire
6. Create
7. Revise
8. Present
9. Reflect

## PROBLEM-BASED LEARNING UNIT

### Day 1: Communication Introduction

#### Introduction w/Anchor Chart

- Discuss different ways to communicate



- Discuss important things to consider when communicating verbally

Communication
<b>Listening and Eye Contact</b> <ul style="list-style-type: none"><li>• Keep eye contact</li><li>• Use hands naturally</li><li>• Confident posture</li><li>• Maintain active listening and know when it's your turn</li><li>• Explain and restate in your own words</li></ul> <b>Speaking</b> <ul style="list-style-type: none"><li>• Speak clearly and fluently and change tone/expression to maintain interest</li><li>• Speak in a style that is appropriate for the occasion and use communication for a range of purposes</li><li>• Maintain a conversation and stay on topic for an extended amount of time</li><li>• Share ideas and offer questions to help others share their ideas</li><li>• Use courteous language; respectfully agree or disagree</li></ul>

## Day 1: Communication Introduction (cont.)

### Practice

- Read the following instructions out loud to describe the picture of the chicken. Students should work on their own to draw what they hear, but they may not ask questions.
  1. Draw an egg shape
  2. Draw a circle touching the egg shape
  3. Draw a small circle inside the circle you have just drawn
  4. Draw three straight lines inside the egg shape
  5. Draw two small lines coming out of the circle that touch at one end
  6. Repeat just below
  7. Draw two longer lines coming out of the egg shape
  8. Draw a line to join up these two lines
  9. Draw three straight lines inside the shape you have just created
  10. Draw two lines coming out of the bottom of the egg shape
  11. Draw two short lines coming out of the lines you have just drawn



- Use the picture of the chicken to show students what they should have drawn.
- Ask students what made the task difficult. Reflect that it is because you can't check the information you are hearing. Good listening needs two-way communication.

## PROBLEM-BASED LEARNING UNIT

### Day 2: Communication Practice

#### Review w/Anchor Charts

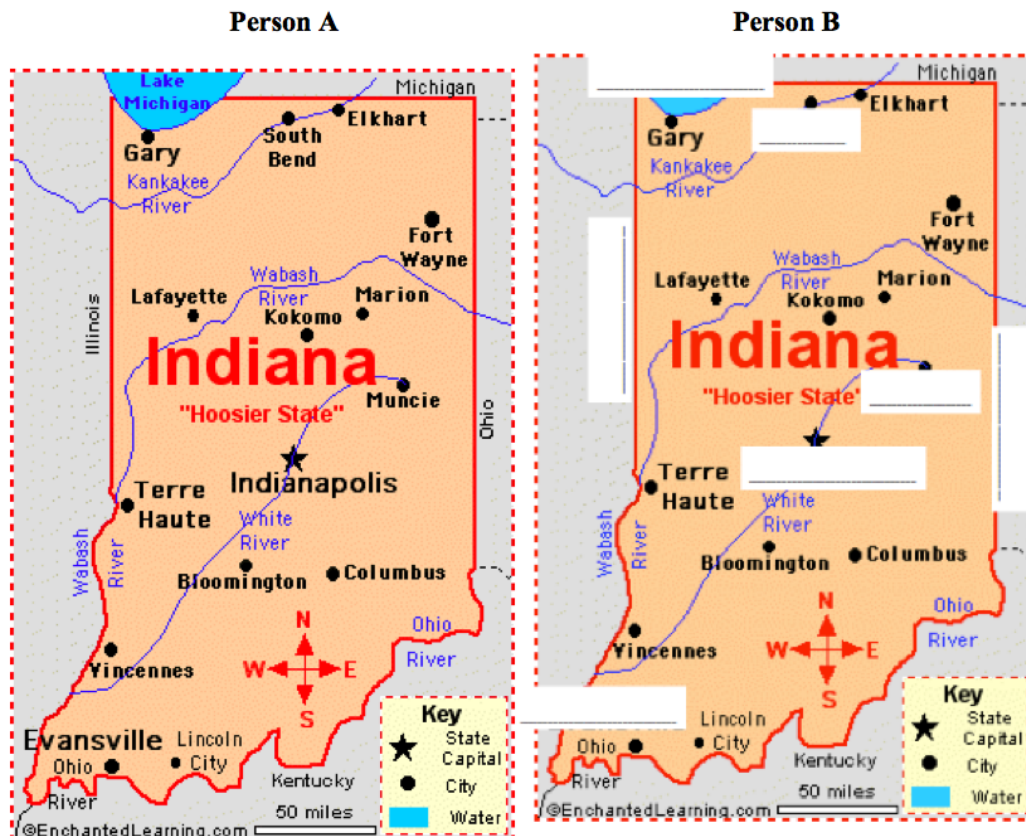
- Discuss different ways to communicate
- Discuss important things to consider when communicating

#### Recall Chicken-drawing activity

#### Practice

- Using a grade-level-appropriate map, have students communicate to another student where and what to label on the map (see following pages)
- Use interactive website to teach/introduce student to basic map skills

Directions: Using only the completed map and a compass to give directions, communicate to person B what goes into each blank



## PROBLEM-BASED LEARNING UNIT

### Day 3: Collaboration Introduction

#### Introduction w/Anchor Chart

- Discuss importance/purpose of collaborating
  - Task completion
  - Think deeper
  - Etc.

Collaboration
<b>Responsibility for Oneself:</b> <ul style="list-style-type: none"><li>• Complete tasks on time</li><li>• Use feedback to improve his or her work</li><li>• Do what he or she is supposed to do without being reminded</li><li>• Prepare and be ready to work with the team; be available for meetings</li></ul>
<b>Helping the TEAM:</b> <ul style="list-style-type: none"><li>• Help the team solve problems, manage conflicts, and stay focused and organized</li><li>• Share ideas that help the team improve its work</li><li>• Give useful feedback (specific and supportive) to others so they can improve their work</li><li>• Offer help to peers to assist in their work</li></ul>
<b>Respect Others:</b> <ul style="list-style-type: none"><li>• Listen carefully to teammates</li><li>• Be polite and kind to teammates</li></ul>

- Discuss important things to consider when collaborating

#### Demonstrate w/Activity

- Put students into groups of 4-5 students
- Give each group one piece of paper and tell them that they must collaborate to list as many things as possible that they ALL have in common
- The goal is to collaborate in order to complete the task
- At the end, reflect on what the activity demonstrated

## PROBLEM-BASED LEARNING UNIT

### Day 4: Collaboration Practice & Creativity Demonstration

#### Review Collaboration w/Anchor Charts

- Discuss importance/purpose of collaborating
- Discuss important things to consider when collaborating

Creativity	
<b>Think Creatively</b>	
<ul style="list-style-type: none"><li>• Create new and worthwhile ideas with idea-creation techniques (such as brainstorming, organizers, etc.)</li><li>• Explain, improve, analyze, and evaluate their own ideas</li></ul>	
<b>Work Creatively with Others</b>	
<ul style="list-style-type: none"><li>• Be open and responsive to new and diverse perspectives</li><li>• Include group input and feedback into the work</li><li>• Demonstrate originality and inventiveness</li><li>• Work and understand the real-world limits to adopting new ideas</li><li>• Understand and view failure as an opportunity to learn: a process of small successes and frequent mistakes</li></ul>	
<b>Implement Innovations</b>	
<ul style="list-style-type: none"><li>• Act on creative ideas to make a tangible and useful contribution</li></ul>	

#### Introduction Creativity w/Anchor Chart

- **Introduce** teamwork roles and discuss jobs and/or make adjustments or additions as needed
- Although everyone should contribute/participate when working in a team, sometimes it is helpful to have assigned jobs so everyone can help complete the task

Collaborative Jobs	
Leader	Reads the task sheet and directs others to do their jobs, if needed.
Scribe	Writes the group activities (graphs or graphic organizers)
Liaison	If there is a problem after discussing the task at hand with your group, the liaison is the only person allowed to leave the station and ask the teacher a question
Material	Gathers all supplies needed for the group
Checker	Collects all papers and holds group work
On-Task	Tracks time and task to be completed.

## PROBLEM-BASED LEARNING UNIT

### Day 4: Collaboration Practice & Creativity Introduction/Demonstration (cont.)

#### Practice w/Activity

- Put students into teams of 4-5 students
- Give each team a project to complete using assigned jobs

#### A Bird's Eye View on Your Community Project

**Directions:** Create a visual representation of each location, #1-10. The locations must be in order from largest to smallest and labeled.

1. Galaxy: Milky Way
2. Planet: Earth
3. Continent: North America
4. Country: United States of America
5. State: Indiana
6. County: \_\_\_\_\_
7. Township: \_\_\_\_\_
8. City: \_\_\_\_\_
9. School: \_\_\_\_\_
10. Classroom: \_\_\_\_\_

## PROBLEM-BASED LEARNING UNIT

### Day 5: Critical Thinking Lesson

#### Review w/Anchor Charts

- Discuss important things to consider

Critical Thinking
<b>Ask Questions</b> <ul style="list-style-type: none"><li>• Ask clarifying questions to help you understand</li><li>• Ask questions to search for answers</li></ul>
<b>Use Information</b> <ul style="list-style-type: none"><li>• Use information to help students understand a topic or solve a problem</li><li>• Discover good-fitting resources</li><li>• Interpret information and draw conclusions</li><li>• Make connections between information</li></ul>
<b>Think Hard</b> <ul style="list-style-type: none"><li>• Take time to understand a topic or problem before solving</li><li>• Use evidence to support your conclusions</li><li>• Compare and contrast how different people might look at an issue, problem, or event</li><li>• Solve different kinds of unfamiliar problems</li><li>• Reflect on learning</li></ul>

#### Practice w/Activity

- Give each student a Thinking Skills Chart
- Pick a Concept (For example: Group Work, Addition, etc.)
- First, in the “Knowledge” box, ask them to communicate through words or pictures that they “Know what it is.”
- Second, in the “Comprehension” box, ask them to communicate through words or pictures that they “Understand it.”
- Third, in the “Application” box, ask them to communicate through words or pictures that they “Know how to use it.”
- Fourth, in the “Analysis” box, ask them to communicate through words or pictures that they “Can analyze its parts.” (Synonyms for analyze: examine, study, consider, dissect, etc.)
- Fifth, in the “Creative thinking/Synthesis” box, ask them to communicate through words or pictures that they “Can extend and alter it.”
- Sixth, in the “Critical Thinking/Evaluation” box, ask them to communicate through words or pictures that they “Can analyze its parts.”



## PROBLEM-BASED LEARNING UNIT

### Day 6: Review “4-Cs”, Project Management Systems & Entry Event/Driving Questions

**Review** Anchor Charts and create “student” definition/symbol for each “C”

**Explain** basics of the PBL unit process:

- **Introduction:** Entry Event
- **Driving Question:** Question to be answered by the end of the project
- **Needs to Know:** T-Chart of “Knows” & “Needs to Know” for the project
- **Collaborate:** Groups/teams establish “Work Plan” and “Collaborative Contract”
- **Inquiry:** Investigate information/data needed in order to answer the driving question
- **Create:** Creatively include your voice and choice within the project
- **Revise:** Review project to make improvements
- **Present:** Give some type of presentation which illustrates/demonstrates the project and/or question to be answered
- **Reflect:** Self-assess and debrief

**Introduce** project-management systems

**Other:** Divide students into rubric project groups

## PROBLEM-BASED LEARNING UNIT

### Day 7: Entry Event/Driving Question

**Review** basics of the PBL unit process:

- **Introduction:** Entry Event
- **Driving Question:** Question to be answered by the end of the project
- **Needs to Know:** T-Chart of “Knows” and “Needs to Know” for the project
- **Collaborate:** Groups/teams establish “Work Plan” and “Collaborative Contract”
- **Inquiry:** Investigate information/data needed in order to answer the driving question
- **Create:** Creatively include your voice and choice within the project
- **Revise:** Review project to make improvements
- **Present:** Give some type of presentation which illustrates/demonstrates the project and/or question to be answered
- **Reflect:** Self-assess and debrief

**Begin PBL Unit Project:**

- **Introduction:** Entry Event → Principal/Assistant explain the philosophy of your elementary school and how it utilizes PBL
- **Driving Question:** Pose question to students:  
“How can we, as <Name of School> 4<sup>th</sup> graders, develop group work expectations and a group work grading tool?”
- **Needs to Know:** Create a T-Chart of “Knows” and “Needs to Know” for the project

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### Day 8: Research & Work Session

**Collaborate:** Groups/teams establish “Work Plan” and “Collaborative Contract”

**Inquiry:** Investigate information/data needed in order to answer the driving question

**Create:** Creatively include your voice and choice within the project

**Revise:** Review project to make improvements

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### Day 9: Presentations

**Present:** Give some type of presentation which illustrates/demonstrates the project and/or question to be answered

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### Day 10: Reflection

**Reflect:** Self-assess and debrief